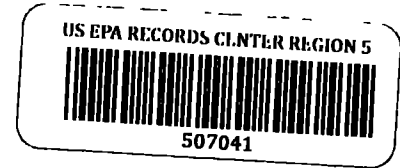




STATE OF MINNESOTA  
OFFICE OF THE ATTORNEY GENERAL  
ST. PAUL 55155

WARREN SPANNAUS  
ATTORNEY GENERAL



May 12, 1981

ADDRESS REPLY TO.  
ATTORNEY GENERAL'S OFFICE  
POLLUTION CONTROL DIVISION  
1935 WEST COUNTY ROAD B-2  
ROSEVILLE, MN 55113  
TELEPHONE (612) 296-7342

Jim Pankanin  
Environmental Engineer  
Enforcement Division  
EPA - Region V  
230 Dearborn  
Chicago, Illinois 60604

Dear Jim:

Thank you for your help in drafting the computer taxonomy. Enclosed is the draft taxonomy as we mailed it to our computer consultant on May 7, 1981. Please review the taxonomy and provide us with any comments or revisions.

I have made some progress in identifying photos, maps, and other documents for our exhibit collection. I will keep you advised. I am sure we will need some federal assistance in this effort.

Have you made any progress with the process engineer/expert? Please advise.

Very truly yours,

DENNIS M. COYNE  
Special Assistant  
Attorney General

DMC/ps  
Enc.

cc (w/enc): Mike Kosakowski  
cc (wo/enc): Erica Dolgin  
Fred Stiehl  
Bob Leininger

P.S. What is status of U.S.  
Interrogatories to Reilly?

005902

## EQUIPMENT/FACILITIES AT/NEAR SITE

- . Refinery facility
- . . Stills/still bottoms
- . . . Externally fired stills
- . . . Internally fired stills
- . . . Stills 1 through 4
- . . . Stills 5 through 8
- . . . Stills 9 through 12
- . . . Stills 13 through 16
- . . . Still 17
- . . Condensers
- . . Collection pans
- . Pitch bays
- . . Concrete flexicore supporting pitch bays
- . Cooling water pond alongside refinery
- . Tar cistern
- . Unloading shed next to tar cistern
- . Byproducts building
- . Adzing/boring mill
- . Retort facility
- . . Retorts/retort catch basins
- . . Treating room
- . . Tank room/pump room
- . . Dock area near retort
- . Boiler building/system
- . Office building
- . . Lab
- . Wheeler Bridge buildings

005903

- . Pollution control equipment facilities
- . . Settling basin
- . . . Hay/straw filters
- . . . Baffle system
- . . Wastewater pipe system from refinery facility area to the settling basin
- . . Wastewater pipe system from retort facility area to the settling basin
- . . Drainage ditch/pipes from settling basin toward Walker St.
- . . Drainage ditch alongside Walker Street
- . . Hay/straw filters alongside Walker Street
- . . Weir at Walker Street
- . . Air scrubber
- . . Phenol extraction tank
- . . Monitoring/testing equipment

- . Piping/pipe trench system
- . . Refinery pipe system
  - . . . Input/storage pipe system for refinery
  - . . . Cooling water/condensor water system
  - . . . Output pipe system for refinery to retorts/byproducts/storage
  - . . . Wastewater pipe system from refinery facility area to the settling basin
  - . . . Trench system for piping within the refinery facility area
- . . Retort pipe system
  - . . . Input/storage pipe system for retort
  - . . . Wastewater pipe system from retort facility area to the settling basin
  - . . . Trench system for piping within the retort facility area
- . . Boiler water pipe system
- . . Steam piping system
- . . Length/diameter of pipes

. Tanks

. . Storage tanks

. . . Capacity of storage tanks

. . . Storage tanks in the refinery facility area

. . . . Below ground refinery storage tanks

. . . . Above ground refinery storage tanks

. . . Storage tanks in the retort facility area

. . . . Below ground retort storage tanks

. . . . Above ground retort storage tanks

- . Wood storage area
- . . Storage area for untreated wood
- . . Storage area for treated wood
- . Waste disposal/dump areas
- . Residential construction
- . . Oak Park Village
- . . Rustic Oaks Condominium

-A5-

May 5, 1981

005907

PROCESSING AND OPERATING ACTIVITIES ON/OFF SITE

- . Coal tar refining
- . . Description of process
- . Wood treatment
- . . Description of process
- . . . Treatment of unseasoned wood
- . Wood storage

B-1-

May 6, 1981

005908

- . Company lab testing on/off site
- . . Testing of raw materials
- . . Testing of products from the refinery operation
- . . Testing of byproducts from the byproduct operation
- . . Testing of boiler water
- . . Testing of wastes/wastewater/discharge water

-B2-

May 6, 1981

005909



- . Disposal of wastes
- . . Wastewater disposal
- . . . Boiler blowdown disposal activities
- . . . Wet cut
- . . Landfilling/landspreading of wastes
- . . . Landfilling/landspreading of wastes on-site
- . . . Landfilling/landspreading of wastes off-site
- . . Incineration of wastes

-B3-

May 6, 1981

005910

- . Transportation/movement/handling of substances
  - . . Transportation/movement/handling of raw materials
    - . . . Transportation to site
    - . . . Movement/handling on-site
  - . . Transportation/movement/handling of chemicals
    - . . . Transportation to site
    - . . . Movement/handling on-site
  - . . Transportation/movement/handling of products from refinery
    - . . . Movement of products from refinery to refinery storage tanks
    - . . . Movement of products from refinery to byproducts operation
    - . . . Movement of products from refinery to retort storage tanks
    - . . . Movement/handling of products from refinery to an area for transport off the site
    - . . . Transportation off-site
  - . . Transportation/movement/handling of byproducts from byproducts building
    - . . . Movement of byproducts from byproducts building to refinery
    - . . . Movement of byproducts from byproducts building to storage tanks
    - . . . Movement/handling of byproducts from byproducts building to an area for transport off the site
    - . . . Transportation off-site

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Revised

005911

- . . Transportation/movement/handling of wood
- . . . Transportation/movement/handling of untreated wood
- . . . . Transportation to site
- . . . . Movement/handling on-site
- . . . Transportation/movement/handling of treated wood
- . . . . Movement/handling on-site
- . . . . Transportation off-site
- . . Transportation/movement/handling of wastes
- . . . Movement/handling on-site
- . . . Transportation off-site

-B4a-

May 6, 1981

005912

- . Maintenance/repair of equipment/facilities on site
- . . Maintenance of wells, well casings, well pumps, and equipment
- . . . Maintenance of well 23
- . . . Plugging/clogging/filling/flooding/sealing of well 23
- . . . Maintenance of well 105
- . . . Plugging/clogging,filling/flooding/sealing of well 105
- . . . Testing/inspection/monitoring/evaluation of wells, well casings, well pumps, and equipment
- . . . . Testing/inspection/monitoring/evaluation of well 23
- . . . . Testing/inspection/monitoring/evaluation of well 105
- . . Maintenance/repair of stills/bottoms of stills in refinery
- . . . Inspections/evaluations/recommendations by insurance companies
- . . Maintenance/repair of condensers in refinery
- . . Cleaning the inside of retorts
- . . Maintenance/repair of piping/pipe trench system
- . . . Testing/inspection/monitoring/evaluation of pipes
- . . . Maintenance/repair of underground pipes
- . . . . Maintenance/repair of pipe trench system
- . . . Maintenance/repairs of above ground pipe system
- . . . Maintenance/repair of steam pipes/steam coils
- . . Maintenance/repair of pumps (excluding well pumps)
- . . . Testing/inspection/monitoring/evaluation of pumps
- . . Maintenance/repair of boilers

- . . Maintenance/cleaning/repair of tanks
- . . .Testing/inspection/monitoring/evaluation of tanks
- . . . Maintenance of storage tanks
- . . . . Storage tanks in the refinery facility area
- . . . . . Below ground storage tanks
- . . . . . Above ground storage tanks
- . . . . Storage tanks in the retort facility area
- . . . . . Below ground storage tanks
- . . . . . Above ground storage tanks
- . . Maintenance of pollution control equipment/facilities
- . . . Settling basin
- . . . . Hay/straw filters
- . . . . Baffle system
- . . . Wastewater pipe system from refinery facility area to the settling basin
- . . . Wastewater pipe system from retort facility area to the settling basin
- . . . Drainage ditch/pipes from settling basin toward Walker St.
- . . . Drainage ditch alongside Walker Street
- . . . Hay/straw filters alongside Walker Street
- . . . Weir at Walker Street
- . . . Air scrubber
- . . . Phenol extraction tank
- . . . Deterioration of equipment at site
- . . . Recommendations/advice re equipment maintenance/repair
- . . . . Recommendations by Reilly officials

- . Installation/replacement of process equipment on-site
- . . Installation of well 23
- . . Replacement of piping/pipe trench system
- . . . Installation of above ground piping as replacement for pipes in ground
- . . . Installation/replacement of steam pipes/steam coils
- . . Installation/replacement of stills/bottoms of stills in refinery
- . . Installation/replacement of condensers in refinery
- . . Installation/replacement of retorts
- . . Installation/replacement of pumps (excluding well pumps)
- . . Installation/replacement of boilers
- . . Installation/replacement of tanks
- . . . Installation/replacement of storage tanks
- . . . . Storage tanks within the refinery facility area
- . . . . . Below ground storage tanks
- . . . . . Above ground storage tanks
- . . . . Storage tanks within the retort facility area
- . . . . . Below ground storage tanks
- . . . . . Above ground storage tanks

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May 5, 1981

005915

- . . Installation/replacement of pollution control equipment/facilities
- . . Maintenance of pollution control equipment/facilities
- . . . Settling basin
- . . . . Hay/straw filters
- . . . . Baffle system
- . . . Wastewater pipe system from refinery facility area to the settling basin
- . . . Wastewater pipe system from retort facility area to the settling basin
- . . . Drainage ditch/pipes from settling basin toward Walker St.
- . . . Drainage ditch alongside Walker Street
- . . . Hay/straw filters alongside Walker Street
- . . . Weir at Walker Street
- . . . Air scrubber
- . . . Phenol extraction tank
- . . Recommendations/advice re equipment installation/replacement
- . . . Recommendations by Reilly officials

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Revised

005916

- . Housekeeping practices at site
- . . Company inspections/investigations at plant site
- . . Recommendations/advice re housekeeping practices
- . . . Recommendations by Reilly officials
- . . Covering/concealing of spill areas

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005917



- . Leaks/leaking of equipment
- . . Leaks/ruptures of stills
- . . Leaks in piping/pipe trenches
- . . . Leaks in underground pipe system
- . . . Leaks from the pipe trench system
- . . . Leaks in above ground pipe system
- . . . Leaks in steam pipes/steam coils
- . . Leaks in pumps
- . . . Leaks in well pumps
- . . Leaks in cistern
- . . Leaks/leaking of storage tanks
- . . . Leaks/leaking of storage tanks in refinery facility area
- . . . Leaks/leaking of storage tanks in retort facility area

- . Spills/dripping of substances
- . . Spills/dripping of substances in refinery facility area
- . . . Spills/dripping in refinery building
- . . . Spills/dripping of refinery storage tanks
- . . . Spills/dripping in area of loading/unloading of raw materials, products and byproducts in the refinery facility area
- . . Spills/dripping of substances in retort facility area
- . . . Spills/dripping of retorts
- . . . Spills/dripping in dock area
- . . . Spills/dripping of retort storage tanks
- . . Spills/dripping of substances in wood storage area
- . . Spills off-site
- . . . Spills off-site by Reilly/Reilly agents/spills associated with Reilly activities
- . . . Spills off-site by others/spills not associated with Reilly activities

- . Fires/explosions
- . . Fires/explosions at stills
- . . Fires/explosions at storage tanks
- . . Fires/explosions in boilers
- . . Fires in marshes/swamps/wet lands/areas south of Walker Street

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005920

- . Cold weather freezing of facilities/equipment
- . . Freezing of pipes
- . . Freezing of tanks

B-11-

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Revised

005921

- . Construction activities
  - . . Street/highway construction
    - . . . Construction/paving/upgrading of Walker Street
    - . . . Extension of Louisiana Avenue
      - . . . . Public comment re extension of Louisiana Avenue
      - . . . . Reilly comment/opposition re extension of Louisiana Avenue
      - . . . . Earthmoving/excavation for Louisiana Avenue
      - . . . . State of Minnesota/City of St. Louis Park agreements/approvals
  - . . Construction of Highway 7
  - . . Storm system/sewer construction/storm water ponds
    - . . . On-site storm water system/sewer construction/storm water ponds
    - . . . Earthmoving/excavation for storm water system/sewer construction/storm water ponds
      - . . . . On-site earthmoving/excavation
  - . . Construction activities after sale of Reilly site in 1973
    - . . . Residential construction on-site
      - . . . . Site studies/soil studies/soil borings/surveys
        - . . . . . National Biocentric Study
      - . . . . Construction of Oak Park Village
        - . . . . . Earthmoving/excavation for Oak Park Village
      - . . . . Construction of Rustic Oaks Condominium
        - . . . . . Earthmoving/excavation for Rustic Oaks Condominium
    - . . . Commercial/industrial construction
      - . . . . Site studies/soil studies/soil borings/surveys SEE: E3
      - . . . . Earthmoving/excavation for commercial/industrial construction

- . Reilly construction/replacement of buildings on-site until closing of Reilly plant
- . Demolition of Reilly buildings/facilities
- . . Demolition during Reilly operations
- . . Demolition after closing of Reilly plant

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Revised

005923

- . Company operations at other locations
- . . Pollution control facilities/practices
- . . Reilly reports filed with US/US EPA/US Corp of Engineers

-B14-

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Revised

005924

## Chemicals/materials/products

### . Chemicals

#### . . Chemical compositions

##### . . . Chemical composition of raw material

##### . . . Chemical composition of products/byproducts

##### . . . Chemical composition of wastes

#### . . Chemical concentrations

##### . . . Chemical concentrations in water samples

##### . . . .Chemical concentrations in surface water samples

##### . . . . Chemical concentrations in groundwater samples

##### . . . . . Chemical concentrations in municipal wells

##### . . . Chemical concentrations in soil samples

##### . . . . Chemical concentrations in rock samples

#### . . Chemicals added to boiler system

#### . . Organic carbon

##### . . . Total organic carbon UF (TOC)

##### . . . Dissolved organic carbon UF (DOC)

##### . . . Suspended organic carbon UF (SOC)

##### . . Polynuclear aromatic hydrocarbons (PAH) UF (PAH compounds PNA (polynuclear aromatics) Polycyclic organic materials WHO compounds POM)

###### . . . Chrysene

###### . . . Acenaphthene

###### . . . Fluoranthene compounds

###### . . . . Fluoranthene

###### . . . . Benzo fluoranthene

###### . . . . . Benzo (k) fluoranthene

###### . . . . . Benzo (i) fluoranthene



- . . . Fluorene
- . . . Pyrene compounds      UF (0-phenylenepyrene, Indeno (1,2,3)pyrene,  
                                1,2,6,7 tetrahydropyrene)
- . . . . Pyrene
- . . . . Benzopyrenes
- . . . . . Benzo (a) pyrene    UF BaP
- . . . . . Benzo (e) pyrene    UF BeP
- . . . Phenanthrene compounds UF (Benzophenanthrene)
- . . . Meso-naphthodianthrene
- . . . 3-Methylcholanthrene
- . . . Perylene compounds
- . . . . Perylene
- . . . . Benzoperylene
- . . . Anthracene compounds
- . . . . Benzanthrane compounds    UF (Dibenz (a,h)anthracene, 1,2-  
   benzanthrane 7,12-dimethylbenz  
   (z) anthracene)
- . . . Naphthalene compounds
- . . . . 2-methylnaphthalene
- . . . Tetracene
- . . . Pyrene
- . . . Coronene
- . . Benzene/hexane extractables
- . . Biphenyls
- . . Cresols
- . . Phenols
- . . . Pentachlorophenol    UF PCP & Penta
- . . Methane

. . Priority pollutants

. . .

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. . .

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ATTACHMENT 1  
LIST OF 129 PRIORITY POLLUTANTS

1. acenaphthene
2. acrolein
3. acrylonitrile
4. benzene
5. benzidine
6. carbon tetrachloride (tetrachloroethane)
7. chlorobenzene
8. 1,2,4-trichlorobenzene
9. hexachlorobenzene
10. 1,2-dichloroethane
11. 1,1,1-trichloroethane
12. hexachlorocyclopentadiene
13. 1,1-dichloroethane
14. 1,1,2-trichloroethane
15. 1,1,2,2-tetrachloroethane
16. chloroethane
17. bis (chloromethyl) ether
18. bis (2-chloroethyl) ether
19. 2-chloroethyl vinyl ether (vinyl)
20. 2-chloroethanol
21. 2,4,6-trichlorophenol
22. parachlorotetrachlorol
23. chloroform (trichloromethane)
24. 2-chlorophenol
25. 1,2-dichlorobenzene
26. 1,3-dichlorobenzene
27. 1,4-dichlorobenzene
28. 3,3'-dichlorobenzidine
29. 1,1-dichloroethylene
30. 1,2-trans-dichloroethylene
31. 2,4-dichlorophenol
32. 1,3-dichlorobenzene
33. 1,3-dichloropropane
34. 2,4-dimethylphenol
35. 2,4-dinitrotoluene
36. 2,6-dinitrotoluene
37. 1,2-diphenylhydrazine
38. ethylbenzene
39. fluoranthene
40. 4-chlorophenyl phenyl ether
41. 4-bromophenyl phenyl ether
42. bis (2-chloroisopropyl) ether
43. bis (2-chloroethoxy) methane
44. methylene chloride (dichloroethane)
45. methyl chloride (chloromethane)
46. methyl bromide
47. bromoform (tribromomethane)
48. dichlorobromomethane
49. trichlorofluoromethane
50. dichlorodifluoromethane
51. chlorodibromomethane
52. hexachlorocyclopentadiene
53. hexachlorocyclopentadiene
54. isocyanate
55. naphthalene
56. nitrobenzene
57. 2-nitrophenol
58. 4-nitrophenol
59. 2,4-dinitrophenol
60. 4,6-dinitro-o-cresol
61. N-nitrosodimethylamine
62. N-nitrosodiphenylamine
63. N-nitrosodi-n-propylamine
64. pentachlorophenol
65. phenol (APP method)
66. bis (2-ethylhexyl) phthalate
67. butyl benzyl phthalate
68. di-n-butyl phthalate
69. di-n-octyl phthalate
70. diethyl phthalate
71. dimethyl phthalate
72. benzo (a) anthracene (1,2-benzanthracene)
73. benzo (a) pyrene (3,4-benzopyrene)
74. 3,4-benzofluoranthene
75. benzo (k) fluoranthene (1,12-benzofluoranthene)
76. chrysene
77. acenaphthylene
78. anthracene
79. benzo (ghi) perylene (1,12-benzoperylene)
80. fluorene
81. phenanthrene
82. diacene (a,h) anthracene
83. indeno (1,2,3-cd) pyrene
84. pyrene
85. tetrachloroethylene
86. toluene
87. trichloroethylene
88. vinyl chloride (chloroethylene)
89. aldrin
90. dieldrin
91. chlordane (tech. mixture & metabolites)
92. 4,4' - DDT
93. 4,4' - DDE (p,p' - DDT)
94. 4,4' - DDD (p,p' - DDE)
95. alpha-endosulfan
96. beta-endosulfan
97. endosulfan sulfate
98. endrin
99. endrin aldehyde
100. heptachlor
101. heptachlor epoxide
102. alpha-benzene hexachloride '3-0'
103. beta-lin
104. gamma-BHC (lindane)
105. delta-BHC
106. PCB-1242 (Aroclor 1242)
107. PCB-1254 (Aroclor 1254)
108. PCB-1221 (Aroclor 1221)
109. PCB-1232 (Aroclor 1232)
110. PCB-1248 (Aroclor 1248)
111. PCB-1260 (Aroclor 1260)
112. PCB-1016 (Aroclor 1016)
113. Toxaphene
114. Antimony (Total)
115. Arsenic (Total)
116. Asbestos (Fibrous)
117. Beryllium (Total)
118. Cadmium (Total)
119. Chromium (Total)
120. Cobalt (Total)
121. Cyanide (Total)
122. Lead (Total)
123. Mercury (Total)
124. Nickel (Total)
125. Selenium (Total)
126. Silver (Total)
127. Thallium (Total)
128. Zinc (Total)
129. 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD)

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. . Inorganics

. . . Metals

. . . . Iron

. . . . Manganese

. . . . Calcium

. . . . Sodium

. . . . Potassium

. . . . Magnesium

. . . . Boron

. . . . Arsenic

. . . . Barium

. . . . Chromium

. . . . Cadmium

. . . . Lead

. . . . Mercury

. . . . Selenium

. . . . Copper

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005929

- . . . Nutrients
  - . . . . Nitrite N
  - . . . . Nitrate N
  - . . . . Phosphorus UF  $\text{PO}_4\text{-P}$
  - . . . . Kjeldahl nitrogen
  - . . . . . Ammonia nitrogen UF  $\text{NH}_3\text{-N}$
  - . . . . . Organic nitrogen
- . . Other Parameters
  - . . . Bacterias UF coliforms
  - . . . . Aerobic
  - . . . . Anaerobic
  - . . . Total volatile solids
  - . . . Total solids
  - . . . Total dissolved solids
  - . . . Total hardness
  - . . . Bicarbonate
  - . . . Carbamate
  - . . . Alkalinity
  - . . . Oxygen
  - . . . PH
  - . . . Chloride
  - . . . Sulphate
  - . . . Fluoride
  - . . . Bromide
  - . . . Cyanide
  - . . . Thiocyanate

005930

- . . . Silica
- . . . Specific conductivity
- . Raw materials
- . . Chemicals used for treating wood
- . . . Petroleum oil
- . . . Zinc chloride ( $Z-Cl_2$ )
- . . . Pentachlorophenol
- . . Coal tar
- . . Sodium hydroxide ( $Na\ OH$ )
- . . Sulfuric acid ( $H_2\ SO_4$ )
- . . Wood
- . . . Railroad ties
- . Products from refinery operations
- . . Creosote
- . . Coke
- . . Pitch
- . . . Roofing pitch
- . . . Binder pitch UF (Electrode binder pitch)
- . . Road tars
- . . Light oils
- . . Heavy oils
- . Byproducts from byproducts building operations
- . . Naphthalene
- . . Tar acids UF (creosol, xylenols)
- . . Tar bases UF (Pyridiac, quinoline)
- . . Naphtha oil
- . . Benzene
- . . Toluene

005931

- . . Xylenes
- . . Anthracene
- . . . Benzanthracene
- . . Carbazole
- . . Phenanthrene
- . . . Binder pitch
- . . Road tars
- . . . Anthracene compounds
- . . . . Benzanthracene compounds
- . Waste products/discarded materials/products/chemicals
- . . Wastes from cleaning settling basin
- . . Waste residues from hay/straw filters
- . . Wastes from cleanup of spills
- . . Wastes from cleaning tar cistern
- . . Wastes from cleaning ditches/trenches/drainage tile/pipes
- . . Condensor water from refinery UF (cooling water)
- . . Wastewater from retort operations
- . . Boiler blowdown
- . . Wet cut
- . . Volume/amounts of waste products/discarded materials
- . Waste disposal areas
- . . Volume/amounts of waste products/discarded materials
- . Analytical protocols/procedures/techniques for Reilly operations

Scope note for chemicals:

Disregard any numbers, greek letters or suffixes or in parenthesis in the middle of chemical compounds other than those specifically indicated as categories.

(i.e., Dibenzanthracene  
or  
Benzo(e)pyrene

005232

Soil/rock/water at/near site

- . Topography/drainage characteristics of site
- . Soil/rock
  - . . Sand/gravel
  - . . Clay
  - . . Peat/muck
  - . . Tarry/mucky/goopy soils
  - . . Bedrock
    - . . . Bedrock valleys
    - . . . Limestone
    - . . . Sandstone
    - . . . Shale
  - . . Soil characteristics
    - . . . Composition/texture
    - . . . Permeability/porosity
    - . . . Absorption/adsorption/ion exchange capacity
  - . . Soil/rock contamination
    - . . . Odor/visual
- . Water
  - . . Water levels/tables
  - . . Surface water
    - . . . Direction of surface water movement
    - . . . Quality of surface water
    - . . . Rivers/creeks
      - . . . . Mississippi River



- . . . . Minnehaha Creek
- . . . . Lakes
- . . . . Wetlands UF marshes, swamps, bogs
- . . . . Ponds
- . . . . Cooling water pond alongside refinery See page A-1
- . . . . Storm water ponds See page B-12
- . Stormwater/flooding/floods at/near/off-site
- . . Surface runoff
- . . Stormwater management practices
- . . . Stormwater management practices by Reilly
- . . . Stormwater management practices by St. Louis Park
- . . . . Pumping of stormwater by St. Louis Park onto the site
- . . Flooding/floods on site
- . . . Flooding in refinery facility area
- . . . . Flooding of cooling water pond
- . . . Flooding in the retort facility area
- . . . . Flooding of retorts/catch basins beneath retorts
- . . . . Flooding in dock area
- . . . . Flooding of retort storage tanks
- . . . Flooding of wood storage area
- . . . Flooding of settling basin and tributary drain tiles/pipes/  
pipe trenches/drainage ditches
- . . . . Flooding of settling basin
- . . . . Flooding of pipe trenches in the refinery facility area
- . . . . Flooding of pipe trenches in the retort facility area
- . . . . Flooding of on-site drainage ditch/drain tiles/pipes from settling  
basin to Walker St.
- . . . . . Flooding of drainage ditch/culvert alongside Walker Street

- . . Flooding of Highway 7 culvert
- . . Flooding of Lake Street/railroad culvert
- . . Flooding of Minnehaha Creek
- . . . Floodplain description of Minnehaha Creek
- . . Groundwater
- . . . Quality of groundwater
- . . . Direction of groundwater movement
- . . . Aquifers
- . . . . Mount Simon-Hinckley aquifer
- . . . . Franconia-Ironton-Galesville aquifer
- . . . . Prairie du Chien-Jordon aquifer
- . . . . . Prairie du Chien aquifer
- . . . . . Jordan aquifer
- . . . . St. Peter aquifer
- . . . . Platteville aquifer
- . . . . Drift/till aquifer

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. . . . Off-site wells  
. . . . . Off-site monitoring wells  
. . . . . Municipal wells  
. . . . . . Minnetonka municipal wells  
. . . . . . Bloomington municipal wells  
. . . . . . Richfield municipal wells  
. . . . . . Edina municipal wells  
. . . . . . Hopkins municipal wells  
. . . . . . St. Louis Park municipal wells  
. . . . . . Plymouth municipal wells  
. . . . . . White Bear Lake municipal wells  
. . . . . . Robbinsdale municipal wells  
. . . . . . Burnsville municipal wells  
. . . . . . Shoreview municipal wells  
. . . . . . North St. Paul municipal wells  
. . . . . . Vadnais Heights municipal wells  
. . . . . Nonmunicipal domestic/residential  
. . . . . Nonmunicipal industrial/commercial wells  
. . . . . . Minneapolis nonmunicipal wells  
. . . . . . St. Paul nonmunicipal wells  
. . . . . . Minnetonka nonmunicipal wells  
. . . . . . Bloomington nonmunicipal wells  
. . . . . . Richfield nonmunicipal wells  
. . . . . . Edina nonmunicipal wells

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## HEALTH/ENVIRONMENTAL EFFECTS/TESTING

- . Health effects
  - . . Health effects on humans
    - . . . Health effects on employees/former employees
    - . . . Health effects on residents
    - . . . Warnings/notifications concerning health/environmental hazards
    - . . . No Observable Effects Levels (NOEL)
  - . . Health effects on animal test subjects
    - . . . Acute effects on animal test subjects
    - . . . Chronic effects on animal test subjects
  - . . Toxicological surveys/studies/health risk assessments
  - . . Epidemiological surveys/studies
    - . . . Evaluations of health studies
    - . . . Comparisons of health studies
    - . . . MDH Studies of St. Louis Park
    - . . . EPA studies of St. Louis Park
- . Death rates/illness
  - . . Cancer
    - . . . Gastro-intestinal
    - . . . Breast cancer
    - . . . Bladder
  - . . Irritations/burns resulting from exposure to contaminants
  - . . Carcinogenic substances
  - . . Mutagenic substances
  - . . Teratogenic substances

- . Environmental damage resulting from contaminants
- . . Damage to plant life resulting from contaminants
- . . Water contamination
- . . Soil/rock contamination
- . . Unpredictable environmental impacts
- . Health/environmental assessment of remedial alternatives
- . . Soil removal/treatment
- . . Treatment of drinking water supply wells
- . . Treatment of gradient control/recovery wells
- . . Air pollution
- . Sources of contamination
- . . Potential alternative sources of contamination
- . Migration of contaminants
- . . Pathways of contaminant migration
- . . . Contaminant migration through wells
- . . Rate of contaminant migration
- . . Distances of contaminant migration
- . . Time periods of contaminant migration
- . . Transformation/breakdown of contaminants during migration
- . . Control of migration UF barrier wells, gradient control wells
- . Environmental studies/investigations/surveys
- . . Hydrogeologic studies/investigations/surveys
- . . . USGS study
- . . . Barr Engineering report
- . . . Hickok reports

- . Testing protocols/procedures/techniques
- . . Water sampling/procedures
- . . Depth of water sampling
- . . . Location of water sampling
- . . . Sampling of abandoned wells
- . . Changes in sampling/monitoring protocols/procedures/techniques
- . . Storage/analytical problems
- . . Evaluations of monitoring techniques/results
- . . Comparisons of monitoring techniques/results
- . . . Soil sampling/sampling procedures
- . . . . Soil borings
- . . . . . Location of soil borings
- . . . . . Depth of soil borings
- . . Custody protocols/procedures/techniques
- . . . Changes custody/protocols/procedures/techniques
- . . . Chain of custody re water samples
- . . . Chain of custody re soil samples
- . . Quality control/assurance in laboratory testing
- . . . Quality control/assurance re water samples
- . . . Quality control/assurance re soil samples
- . . Analytical protocols/procedures/techniques
- . . . Changes in analytical protocols/procedures/techniques
- . . . Extraction of volatile fractions UF Purge/trap
- . . . Extraction of acid fraction
- . . . Extraction of base/neutral fraction

SEE: Page B-12



- . . . Chromatography
  - . . . . Gas chromatography (GC)
  - . . . . Liquid chromatography (LC)
    - . . . . . High performance liquid chromatography (HPLC)
  - . . . . Gas/liquid chromatography
  - . . . . Thin layer chromatography/strip chromatography
  - . . . . Column chromatography
- . . . Spectrometry
  - . . . . Colorimetric
  - . . . . Mass spectrometry (MS)
  - . . . Gas chromatography/mass spectrometry (GCMS)
  - . . . Liquid chromatography/mass spectrometry (LCMS)

PURCHASE/SALE OF SITE

- . Purchase/sale of site
- . . Advice/recommendations re purchase/sale of site
- . . . Advice/recommendations made to St. Louis Park/HRA
- . . Site appraisals/site studies/soil studies/soil borings/surveys .  
prior to sale of site in 1973
- . . Remedial/"clean-up" tasks discussed or suggested for the site  
prior to sale of site in 1973
- . . . Estimate of costs
- . . Hold harmless agreement/indemnification/property sold "as is"
- . . Asking/offering/sale prices of site

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## MEETINGS

- . Meetings
- . . Meetings of company
- . . . Meeting with U.S./U.S. legislators/USGS/HUD/FHA/EPA/DOJ
- . . . Meeting with Minnesota/MN legislators/MPCA/MDH/AG
- . . . Meeting with regional/metropolitan government/Metro Council/MWCC/Minneapolis Sanitary District
- . . . Meeting with St. Louis Park/City Council/HRA
- . . . Meeting with other company personnel
- . . Meetings of U.S./U.S. legislators/USGS/HUD/FHA/EPA/DOJ
- . . . Meeting with Minnesota/MN legislators/MPCA/MDH/AG
- . . . Meeting with regional/metropolitan government/Metro Council/MWCC/Minneapolis Sanitary District
- . . . Meeting with St. Louis Park/City Council/HRA
- . . . Meeting with company personnel
- . . . Meeting with other U.S./U.S. legislators/USGSD/HUD/FHA/EPA/DOJ personnel
- . . Meetings of Minnesota/MN legislators/MPCA/MDH/AG
- . . . Meeting with U.S./U.S. legislators/USGS/HUD/FHA/EPA/DOJ
- . . . Meeting with regional/metropolitan government/Metro Council/MWCC/Minneapolis Sanitary District
- . . . Meeting with St. Louis Park/City Council/HRA
- . . . Meeting with company personnel
- . . . Meetings with other Minnesota/MN legislators/MPCA/MDH/AG personnel

- . . Meetings of regional/metropolitan government/Metro Council/MWCC/Minneapolis Sanitary District
- . . . Meeting with U.S./U.S. legislators/USGS/HUD/FHA/EPA/DOJ
- . . . Meeting with Minnesota/MN legislators/MPCA/MDH/AG
- . . . Meeting with St. Louis Park/City Council/HRA
- . . . Meeting with company personnel
- . . . Meeting with other regional/metropolitan government/Metro Council/MWCC/Minneapolis Sanitary District personnel
- . . Meetings of St. Louis Park/City Council/HRA
- . . . Meeting with U.S./U.S. legislators/USGS/HUD/FHA/EPA/DOJ
- . . . Meeting with Minnesota/MN legislators/MPCA/MDH/AG
- . . . Meeting with regional/metropolitan government/Metro Council/MWCC/Minneapolis Sanitary District
- . . . Meeting with company personnel
- . . . Meeting with other St. Louis Park/City Council/HRA personnel

## REILLY MANAGEMENT AND ACTIVITIES

- . Company management/management structure
- . . Company's management/management structure at the St. Louis Park site
- . . Authority/responsibility for environmental affairs/waste disposal
- . . . Authority/responsibility for environmental affairs/waste disposal at the St. Louis Park site
- . . Specifications/criteria/standards
- . . . Specifications/criteria/standards for treated wood
- . . . Specifications/criteria/standards for refinery products
- . . . Specifications/criteria/standards for handling and disposal of wastes
- . . . . Company standards for handling and disposal of wastes
- . . . API criteria/standards
- . . Industry practices for handling and disposal of wastes
- . . . Reilly practices for handling and disposal of wastes
- . . Technology/technological standards for handling and disposal of wastes
- . Assets/net worth of company
- . Insurance/insurance records
- . . Workers compensation insurance
- . . Insurance claims
- . . . Payment/settlement of insurance claims
- . Trade associations
- . . Wood treaters/preservers association
- . Unions
- . Litigation by/against Reilly (excluding actions brought by Minnesota and/or US)
- . . Litigation by Reilly against SLP, challenging SLP taxes

## GOVERNMENTAL REGULATIONS AND ACTIVITIES

- . Regulations/legislation/standards
  - . . Water quality standards/criteria
    - . . . World Health Organization (WHO) standards
    - . . . National Academy of Science (NAS) standards
    - . . . Primary Drinking Water Standards (Safe Drinking Water Act) standards
    - . . . Secondary Drinking Water Standards (Safe Drinking Water Act) standards
    - . . . EPA Water Quality Criteria
    - . . . Suggested Non-Adverse Reaction Levels (SNARLS) standards
    - . . . Effluent/discharge standards
      - . . . . Standards for discharge to surface waters
      - . . . . Standards for discharge to groundwater/disposal wells
      - . . . . Standards for discharge to sewers/sanitary sewers/sewage treatment plant
  - . . Compliance with regulations/legislation/standards
- . Experts consulted
  - . . Experts consulted regarding industrial process
  - . . Experts consulted regarding hydrology/geology
    - . . . USGS
  - . . Experts consulted regarding chemistry/chemical analyses
  - . . Experts consulted regarding health effects
    - . . . Toxicologists
    - . . . Epidemiologists
  - . . Experts consulted regarding remedial activities
  - . . . Hickok

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- . Permits
  - . . NPDES/SPDES water quality permits
  - . . Water use/withdrawal/MN DNR permits
  - . . Minnesota disposal permit for wastewater, pursuant to Minn. Stat. §115.07
  - . . Minnesota permit for fuel oil storage, pursuant to Minn. WPC 4, \_\_\_\_\_MCAR \_\_\_\_\_
  - . . Building permits
  - . . Violations of permits
- . HRA
  - . . Litigation by Reilly
  - . . Public hearings
- . Financial aspects (excluding Reilly)
  - . . Assest/net worth of City of St. Louis Park
  - . . . Assets/net worth of HRA
  - . . . Bonding capabilities

- . . Costs/expenditures
- . . . Superfund/RCRA funding
- . . . . Federal costs
- . . . . . EPA reallocation funding
- . . . . State matching funds
- . . . . St. Louis Park matching funds
- . . . . Federal/state cooperative agreement
- . . . . Public participation
- . . . Litigation costs
- . . . . Attorney costs
- . . . Costs for studies of extent of groundwater pollution/soil  
contamination/development of remedial plans
- . . . . USGS studies
- . . . . Barr studies
- . . . . Hickok studies
- . . . Costs for expert witnesses/consultants
- . . . Special appropriations by the Minnesota Legislature
- . . . . LAC request/hearings/funding approvals
- . . . Staff investigation/lab analysis costs
- . . . . MPCA staff investigation/lab analysis costs
- . . . . MDH staff investigation/lab analysis costs
- . . . . St. Louis Park investigation/lab analysis costs
- . . . . US EPA staff investigation/lab analysis costs
- . Computer services

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Remedial Action/Clean-up

- . Remedial actions/work
  - . . Plans for remedial actions
    - . . . Abandonment of wells
      - . . . . Sampling of abandoned wells
    - . . . Construction of new wells
    - . . . Reconstruction of wells
      - . . . . Grouting of wells
    - . . . Well water treatment
      - . . . . Discharge water treatment
        - . . . . . Carbon
        - . . . . . Other treatment
      - . . . . . Drinking water treatment
        - . . . . . Carbon
        - . . . . . Other treatment
    - . . . Reinjection
      - . . . . Carbon
      - . . . . Other treatment
    - . . . Groundwater control
      - . . . . Gradient control/barrier/pump-out well system
    - . . . Monitoring wells
    - . . . Remedial action on soil
      - . . . . Isolation/containment
      - . . . . Treatment/landfarming
      - . . . . Removal/landfilling

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- . . Actual and projected costs of remedial actions
- . . . Costs for construction of new wells
- . . . Costs for well abandonment/closure
- . . . . Costs for sampling of abandoned wells
- . . . Costs for reconstruction of wells
- . . . . Costs for grouting of wells
- . . . Costs for gradient control/barrier wells
- . . . Costs for monitoring wells
- . . . Costs for water treatment
- . . . . Water treatment for potable water
- . . . . Water treatment for discharge as waste
- . . . Costs for soil removal/isolation/treatment

Terms in taxonomyIndex terms - synonyms or equivalents

Storage area for treated wood

UF Tie yard

Air scrubber

UF Wet scrubber Sulfuric acid scrubber  
Sulfuric acid

Settling basin

UF Retaining basin Gravity separator  
API separator  
Oil/Water separator

Pitch bays

UF Pans  
Product collection pans  
Collection pans

Retort

UF Treating cylinder

Retort facility

UF Autoclave  
Treating facility, includes boiler

Internally fired stills

UF Tube stills  
Leshar stills

Nonmunicipal wells

UF Processing wells

Well 105

Sugar beet well

Well 23

Republic Hinckley well  
Hinckley well  
Reilly deep well

Wood treating criteria/standards

MnDOT standards

Water quality criteria/standards

WQC (water quality criteria)

Remedial action re barrier/  
pumpout water treatment

Gradient controls

Barrier/pumpout wells

Gradient control wells

Abandonment of wells

Well abandonment program

Confining beds

Aquicludes  
Aquitards

Drift/till aquifer

Unconsolidated deposits  
Glacial till

Lower drift aquifer

Basal drift

Prairie du Chien aquifer

Shakopee aquifer/dolomite  
New Richmond aquifer/sandstone  
Oenoda aquifer/dolomite

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Terms in taxonomy

Index terms - synonyms or equivalents

Wetlands

Peat bogs  
Marshes  
Swamps  
Sluice  
Ponding areas

Cooling water pond

Boiler water pond  
Cooling water lagoon

Sand/gravel

Alluvium

Clay

Hardpan

Tarry/mucky/goopy soils

Black goop  
Brown goop

Bedrock

Consolidated deposits

Bedrock valleys

Buried valleys

Coal tar refining

Vacuum distillation

Hydrogeologic studies/  
investigations/surveys

Seismic surveys

Monitoring wells

Piezometers  
Observations wells  
Network of monitoring wells

Wet cut

Two-percent cut

Condenser water

Cooling water

Pitch

Heavy ends

Creosote

Creosote oil

Products/byproducts

Coal tar derivatives

Soil characteristics

Permeability of soil  
Texture of soil  
Grain size of soil  
pH values of soil

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Terms in taxonomy

Storm water ponds

Tar basis  
[plus other synonyms mentioned  
in section C]

Waste

Housekeeping

Retort area

Refinery area

Index terms - synonyms or equivalents

Lined ponds  
Detention ponds  
Retention ponds

Quinolines

UF Discharge water, wastewater,  
sludge, residues, contaminated  
soils, discarded materials

UF Spreading of crushed rock or  
soil to cover spills, covering of  
spills

Retorts, building, treating room,  
boiler room, dock, retort storage  
tanks

Refinery, cooling water pond, area of  
former byproducts building and tanks,  
tar cistern

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